

National Ambient Air Quality Standards

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Overview

National Ambient Air Quality Standards

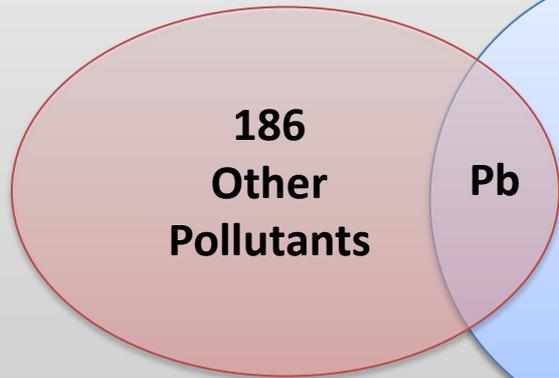
Ozone NAAQS

Nonattainment Consequences

SO₂ NAAQS

Regulated Air Pollutants

Hazardous Air Pollutants (HAPs)



Criteria Pollutants

PM₁₀
PM_{2.5}
SO₂
NO_x
VOCs
CO

Greenhouse Gases (GHGs)

Carbon Dioxide (CO₂)
Methane (CH₄)
Nitrous Oxide (N₂O)
Fluorinated Gases

Other

TRS
H₂S

Ozone-depleting Substances (ODS)

CFCs
HCFCs

NAAQS Statutory Requirements

- The EPA must publish and periodically revise ambient air quality standards for pollutants that:
 - “Cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare”
 - “The presence of which in the ambient air results from numerous or diverse mobile or stationary sources”

NAAQS Statutory Requirements

- Primary Standards
 - “...an adequate margin of safety...requisite to protect the public health.”
- Secondary Standards
 - “...requisite to protect the public welfare from any known or anticipated adverse effects associated with the presence of such air pollutant in the ambient air.”

NAAQS Development Timeline

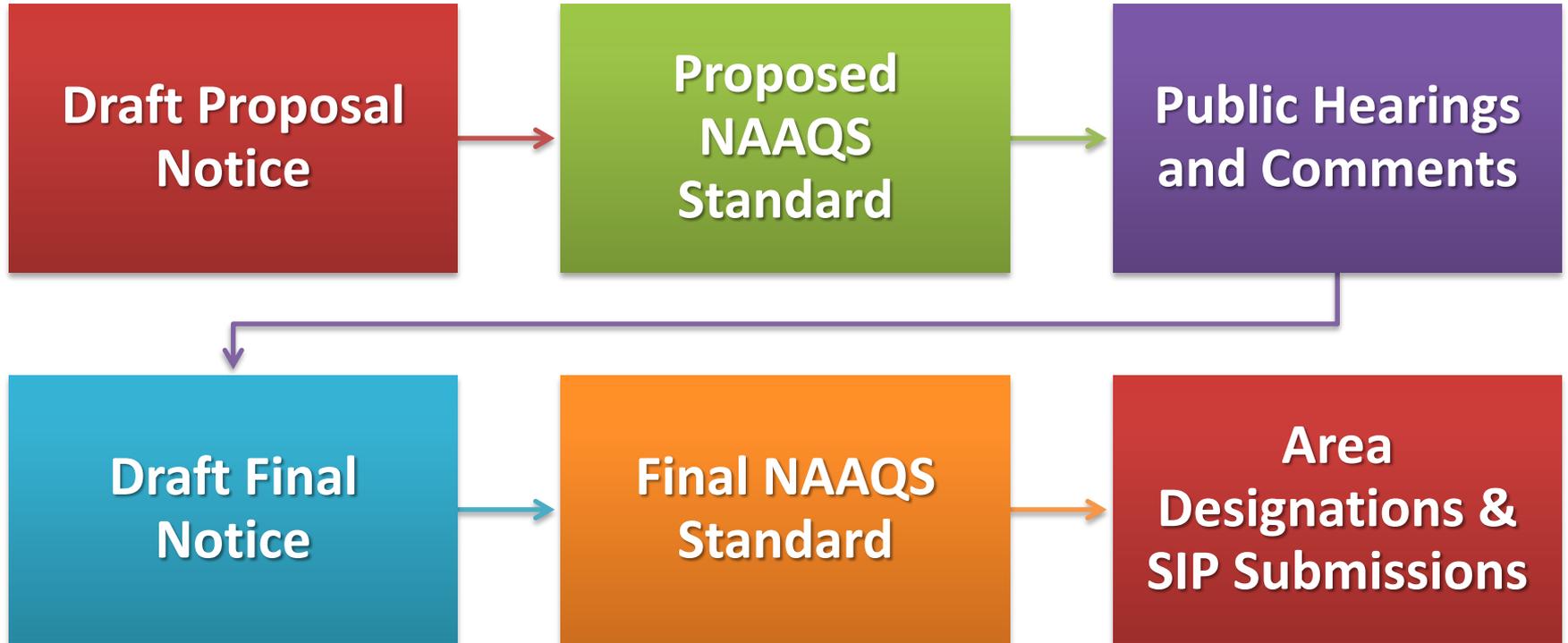
Planning Phase



CASAC review and advice

Opportunity for public comments

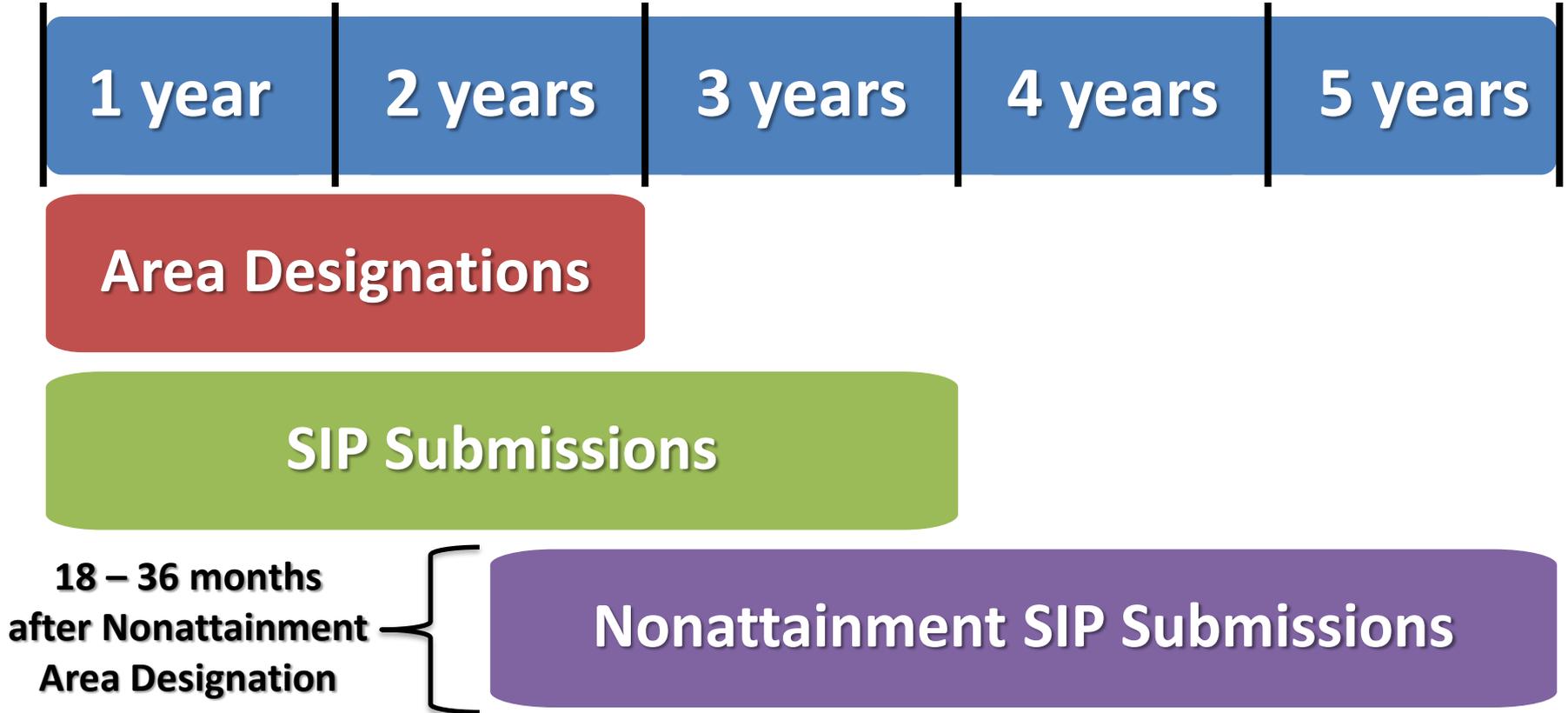
NAAQS Development Timeline



State Implementation Plans (SIPs)

- Primary NAAQS compliance mechanism
- State blueprint for achieving and maintaining NAAQS
- Required for each NAAQS pollutant
- Gives states significant regulatory flexibility
- EPA may impose sanctions for inadequate SIPs

SIP Development Process After NAAQS Promulgation



**18 – 36 months
after Nonattainment
Area Designation**

Nonattainment SIP Submissions

Source:

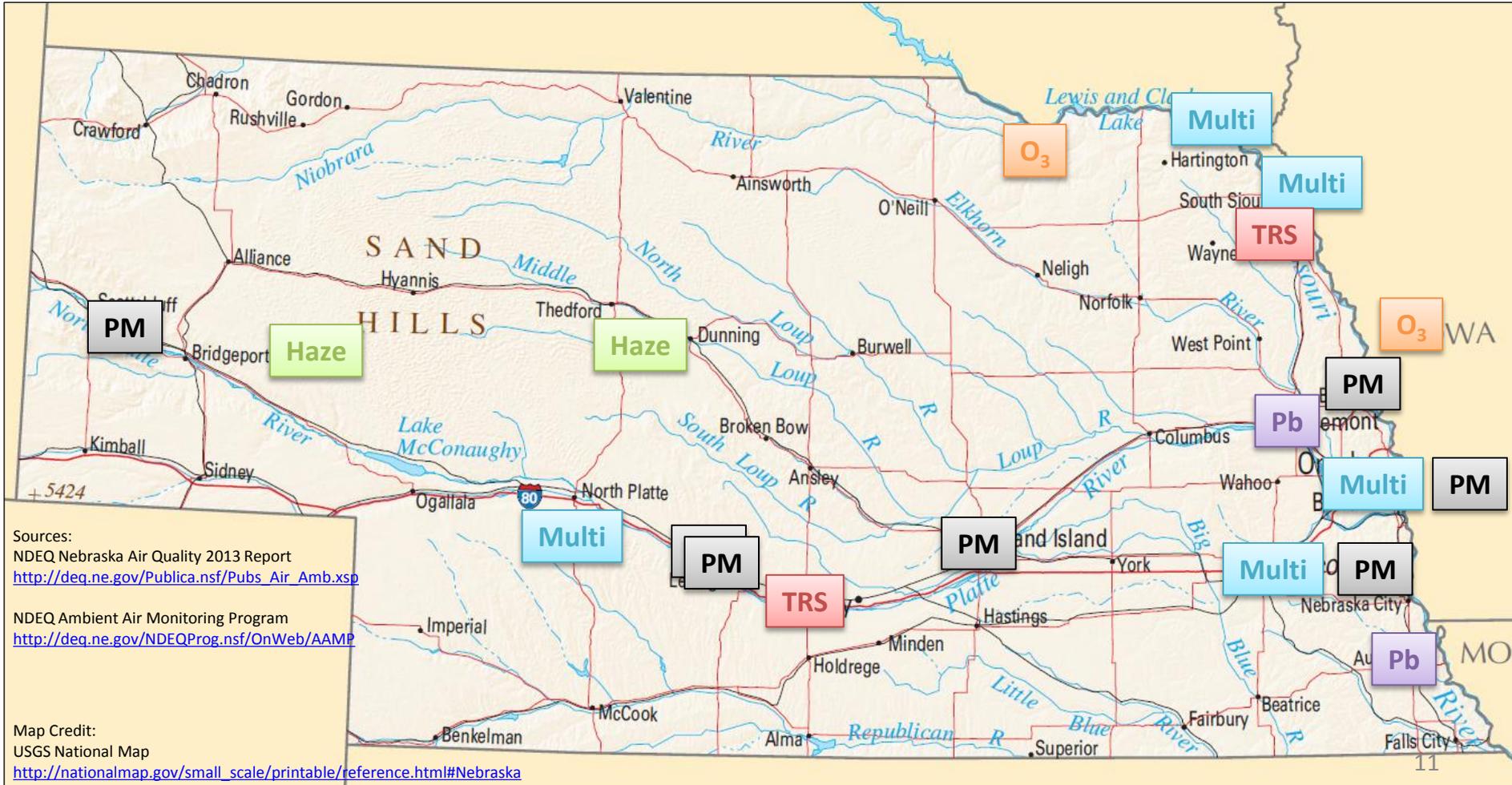
EPA | SIP Development Process

<http://www.epa.gov/airquality/urbanair/sipstatus/process.html>

Nebraska Air Monitoring Network



Nebraska Air Monitoring Network



Ozone NAAQS

Health and Welfare Impacts of Ozone

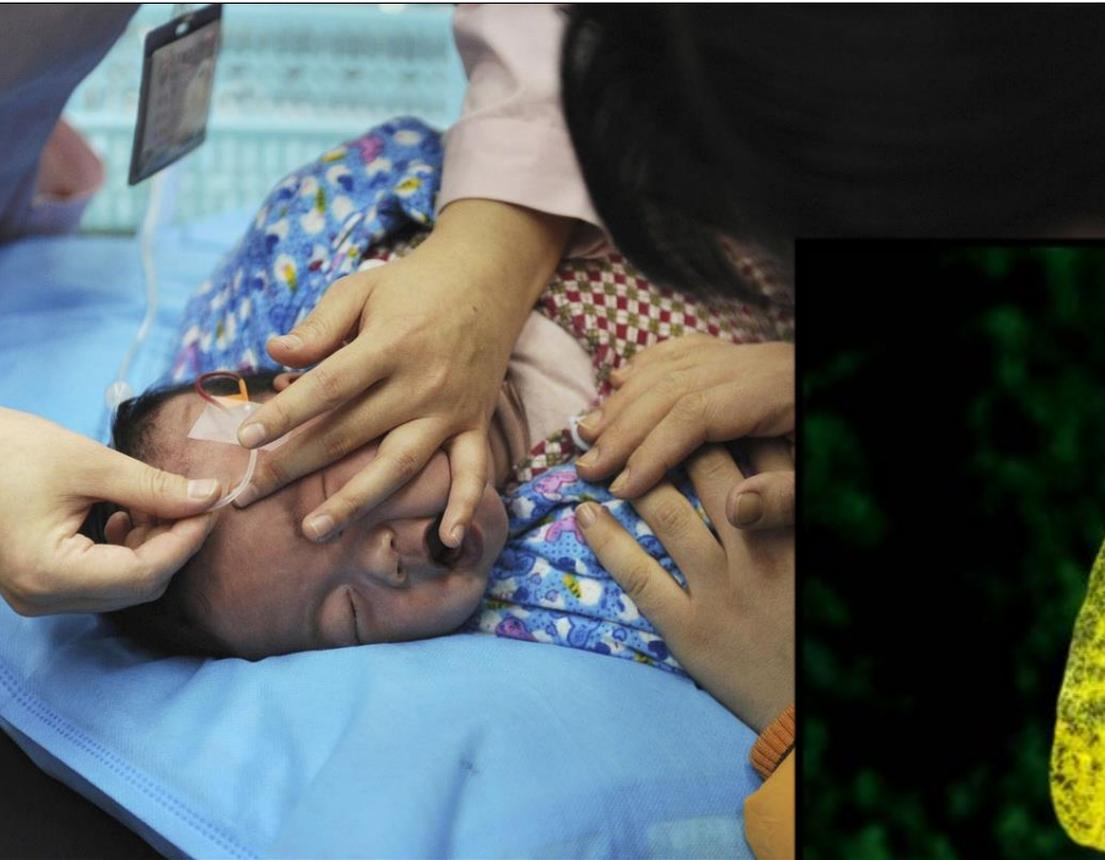
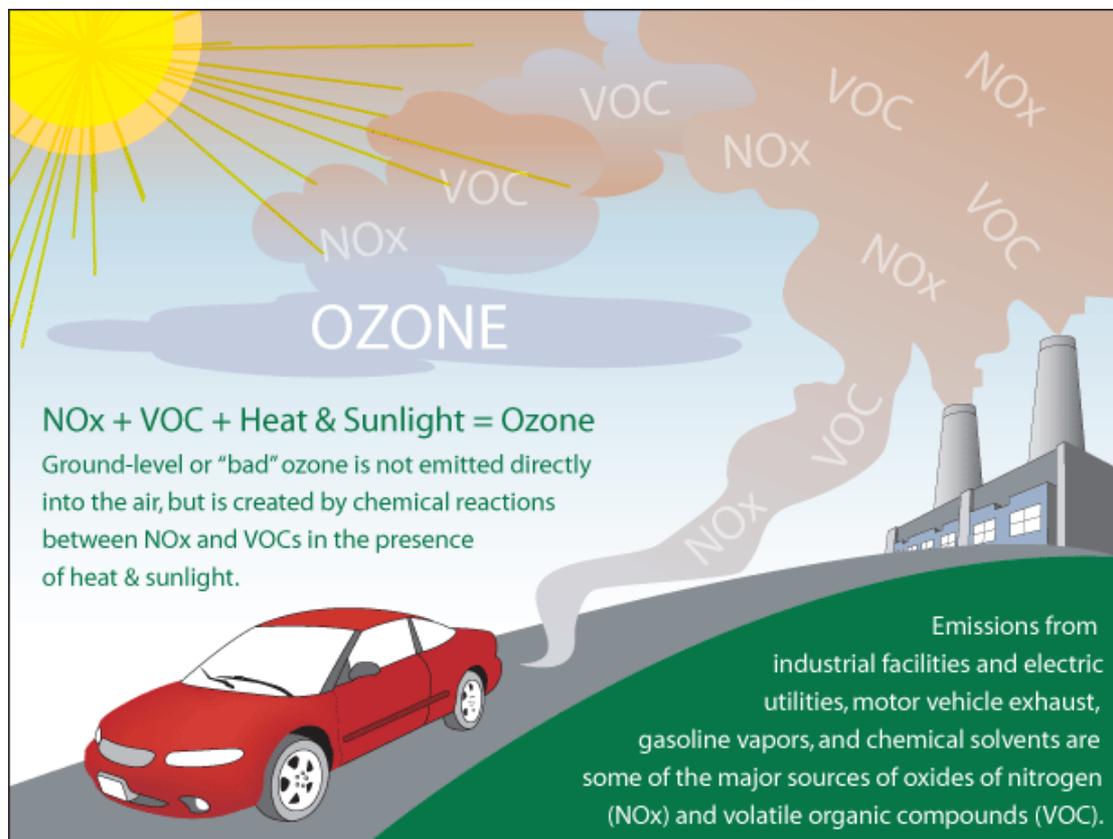


Photo Credit:
Reuters/Stringer
<http://www.theatlantic.com/photo/2013/01/chinas-toxic-sky/100449/#img27>

Photo Credit:
Discovery Education
<http://streaming.discoveryeducation.com/>

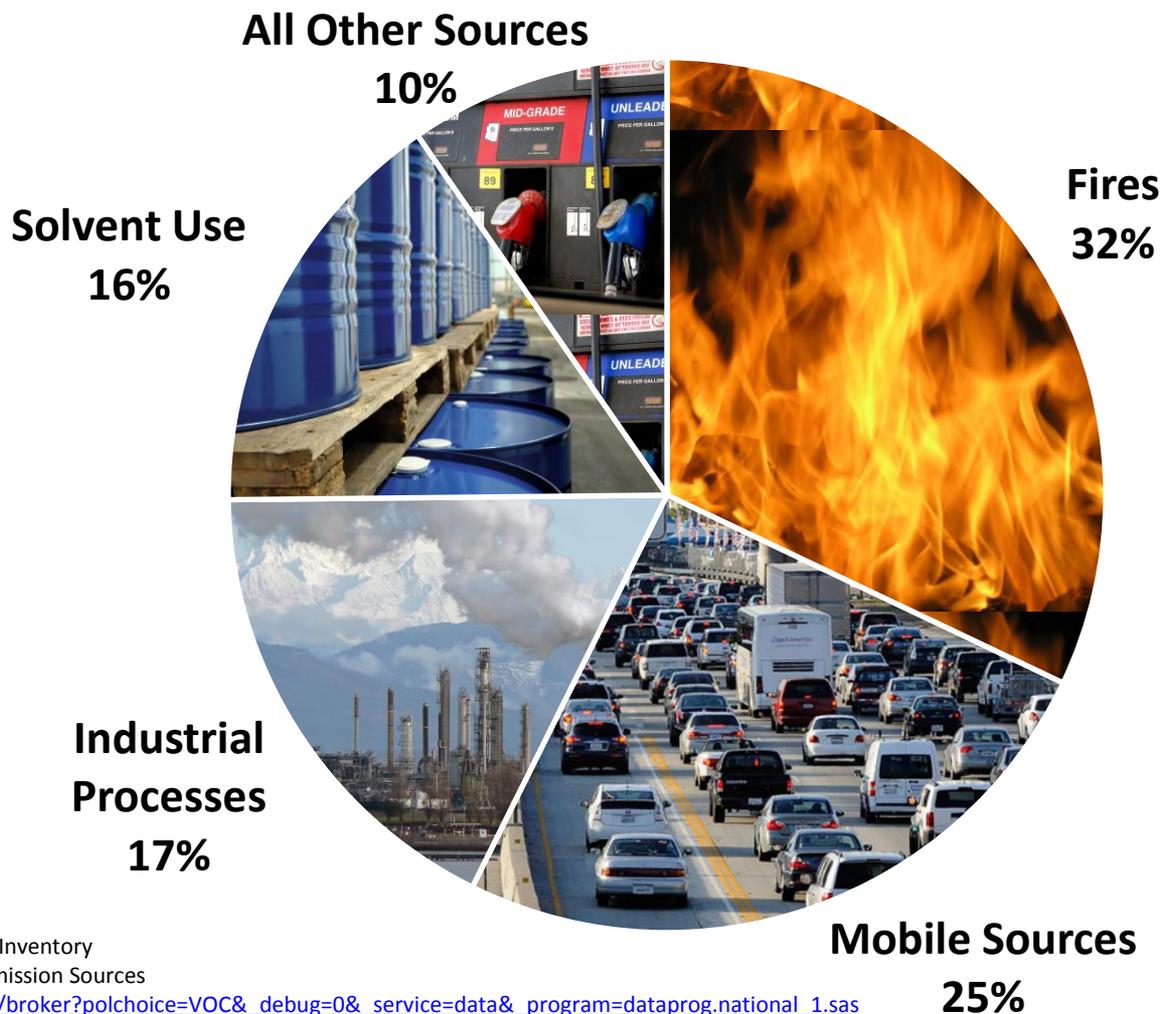


Ozone Formation



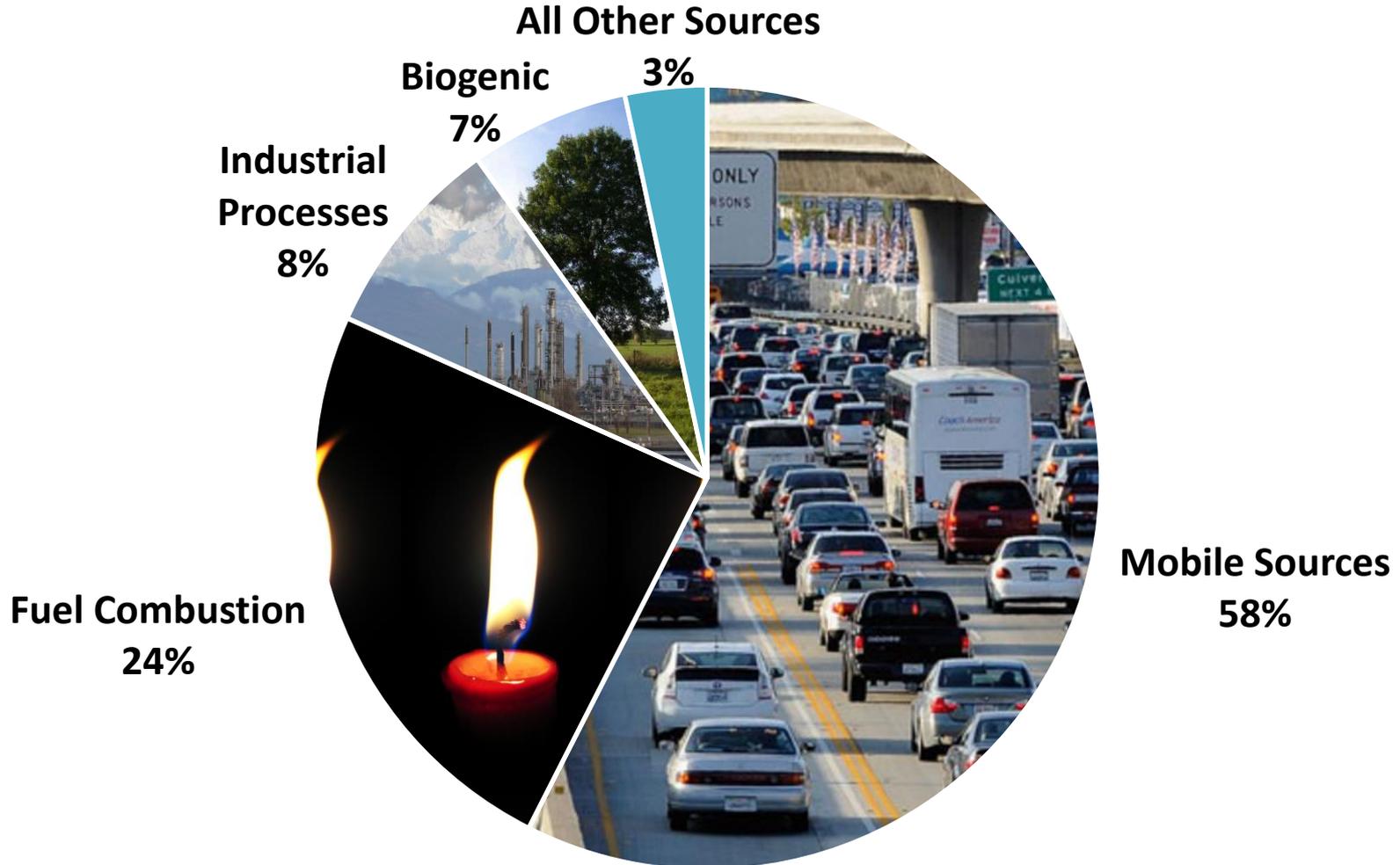
- Good Ozone
 - Stratospheric
 - 6-30 miles above Earth's surface
- Bad Ozone
 - Tropospheric
 - Ground-level

2011 VOC Emission Sources (Non-Biogenic*)

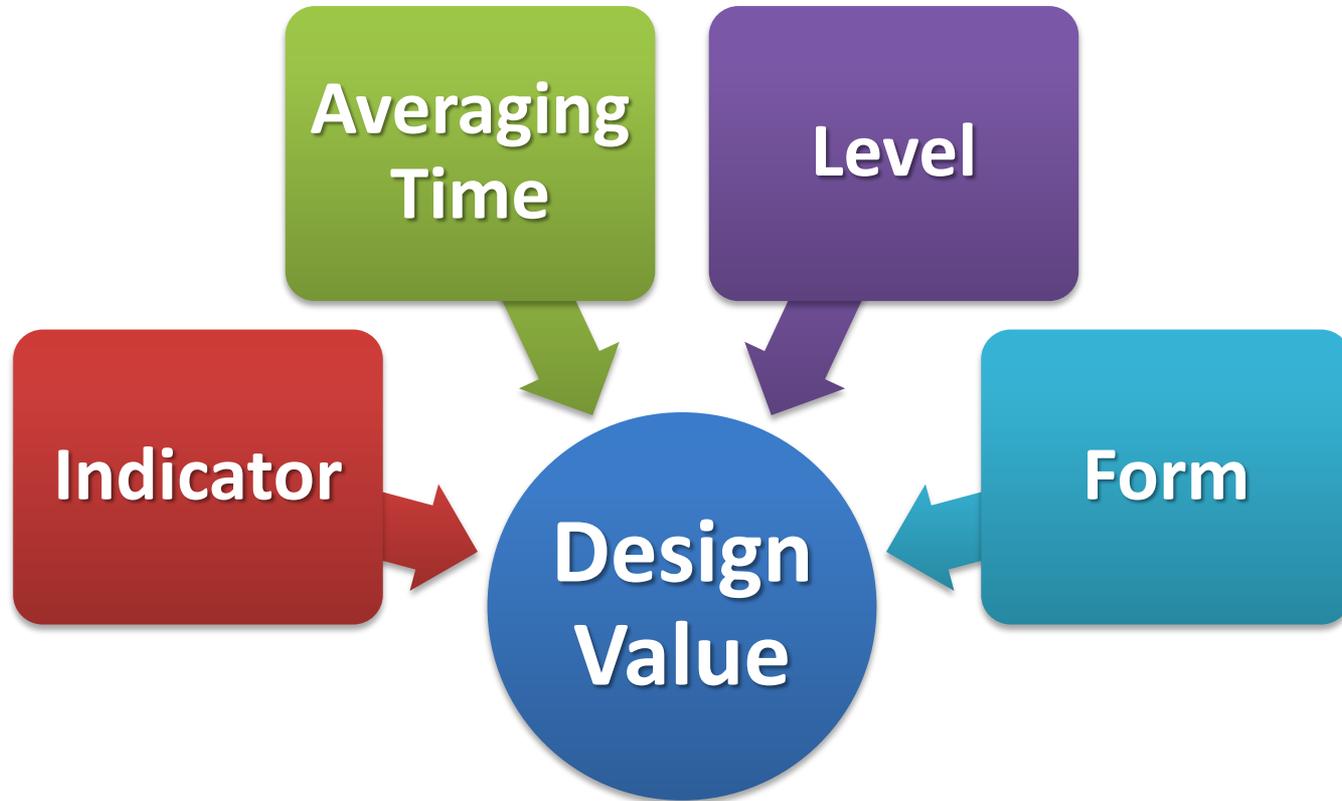


*“Biogenic” refers to naturally-occurring vegetative and soil processes. It does not include wildfires, which are included under the “Fires” category.

2011 NOx Emission Sources



NAAQS Components



History of Ozone NAAQS

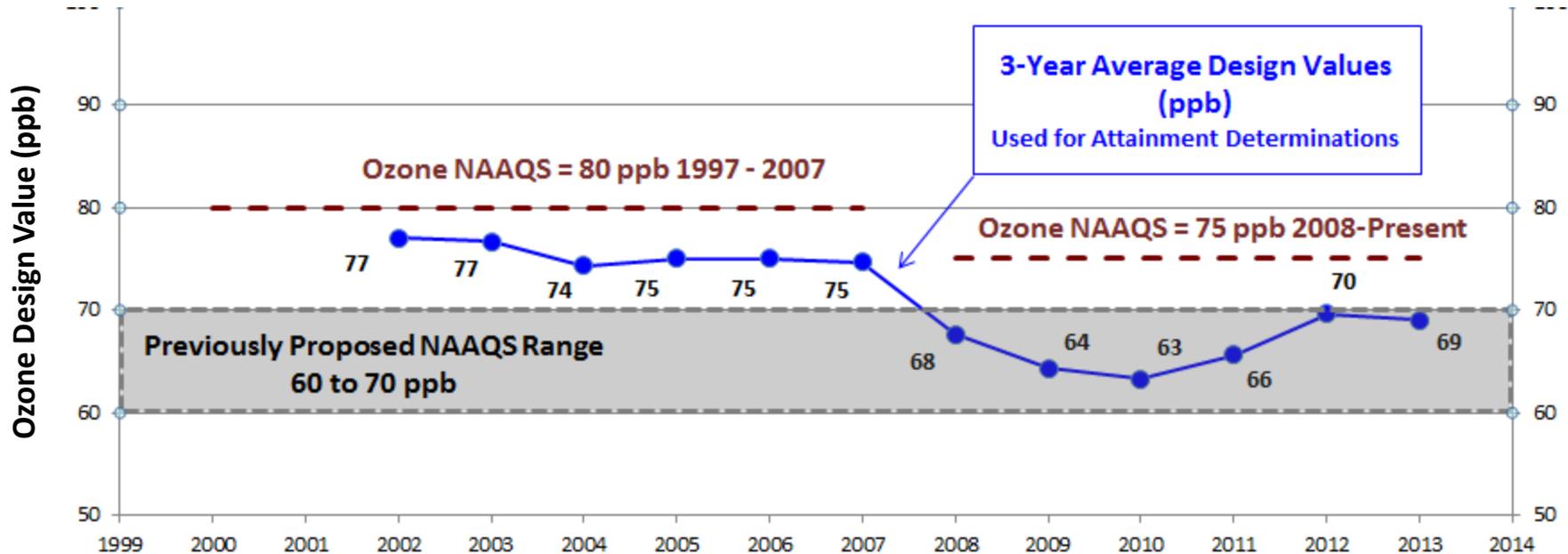
Final Rule Date	Indicator	Averaging Time	Level (ppm)	Form
Apr 1971	Total photochemical oxidants	1-hour	0.08	Not to be exceeded more than one hour per year
Feb 1979	Ozone	–	0.12	Expected number of days per calendar year with maximum hourly average concentration greater than 0.12 ppm is equal to or less than 1
Mar 1993	–	–	–	–
Jul 1997	–	8-hour	0.08 (84 ppb)	Annual 4th-highest daily maximum 8-hour concentration, averaged over 3 years
Mar 2008	–	–	0.075	–

“–” Same as previous

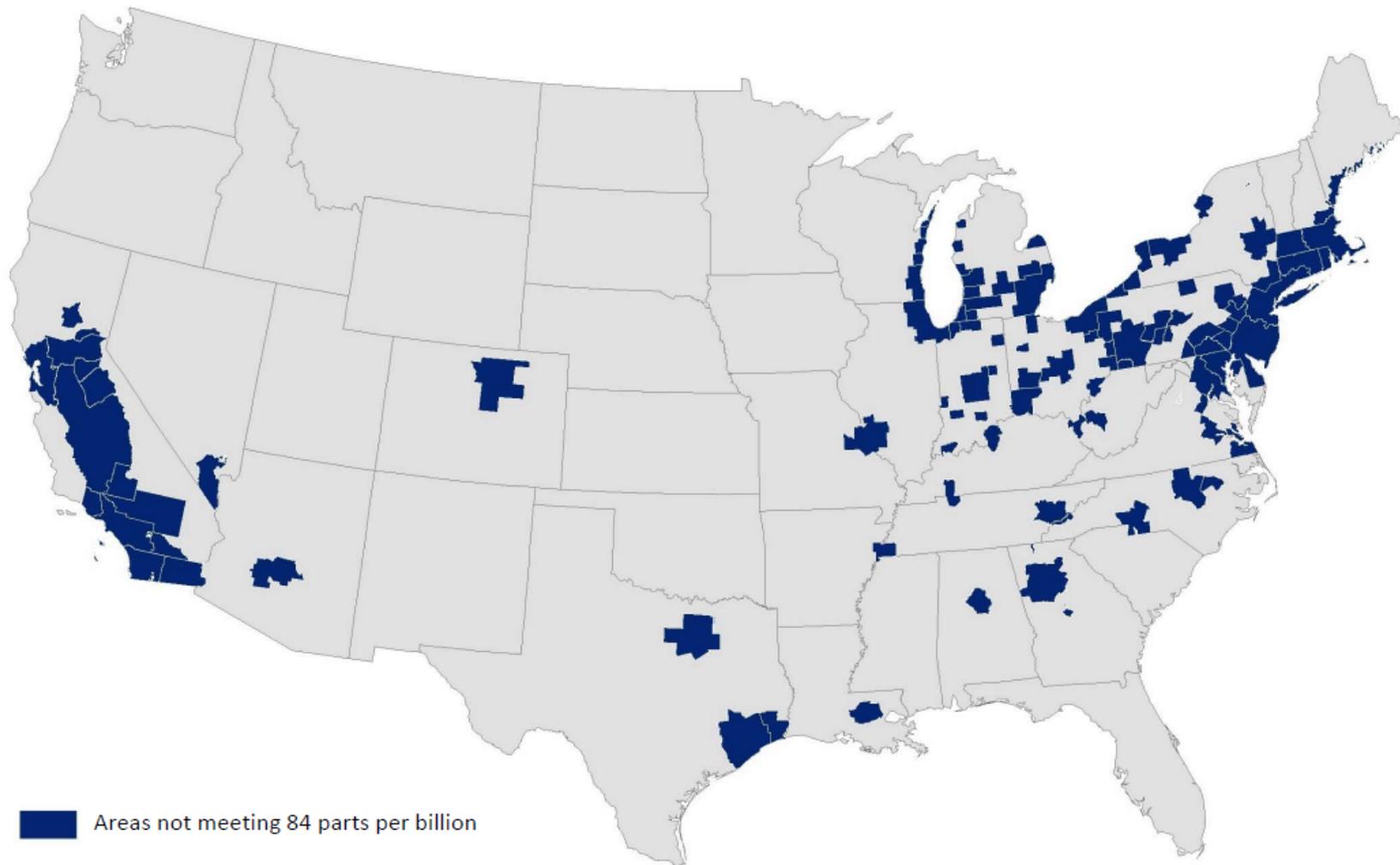
Ozone Design Values (2014) (ppb)



Ozone Design Values at Omaha MSA Harrison County IA Site (2000 – 2013)



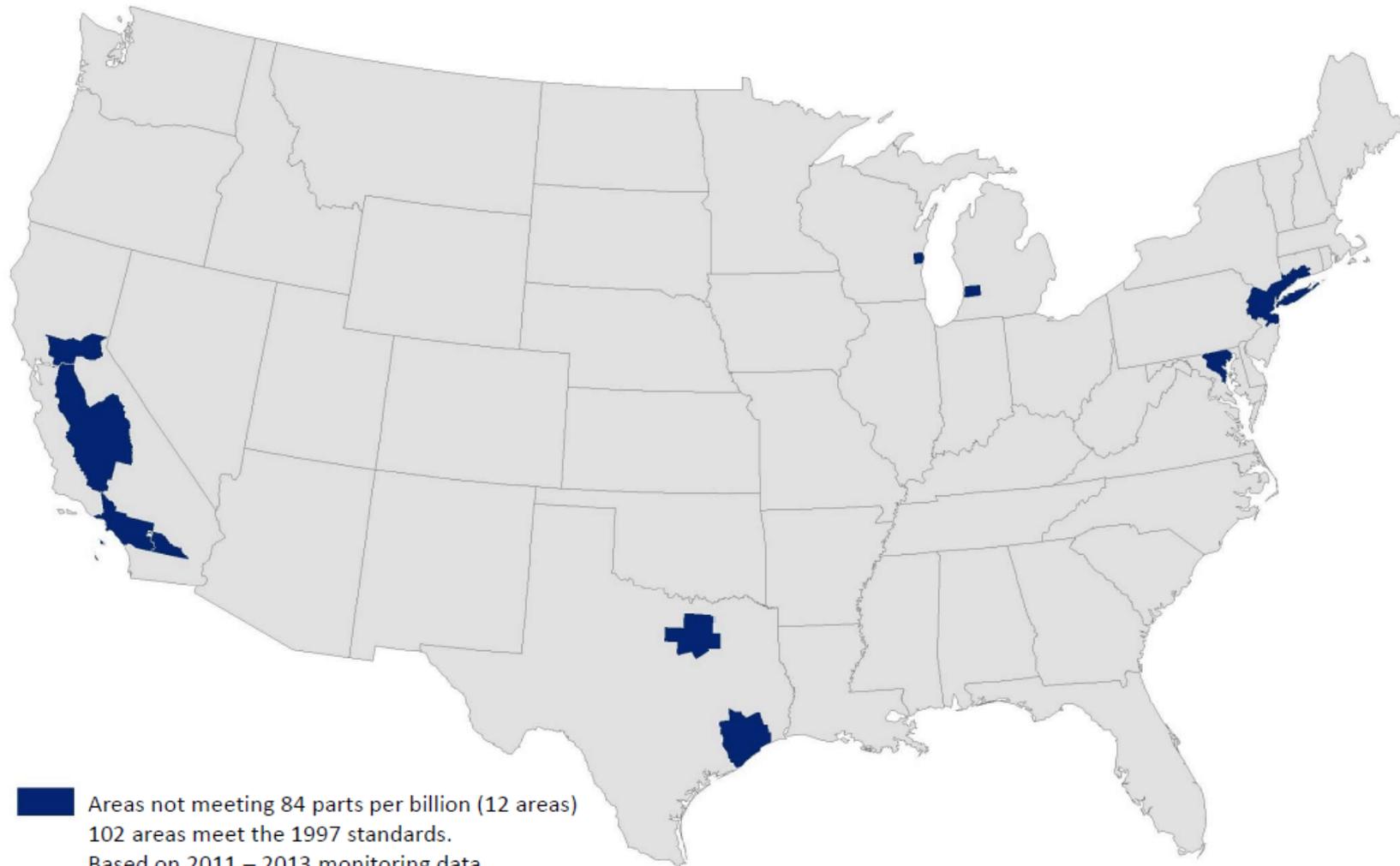
Originally, EPA Identified 114 Areas that did not meet the 1997 Ground-level Ozone Standards



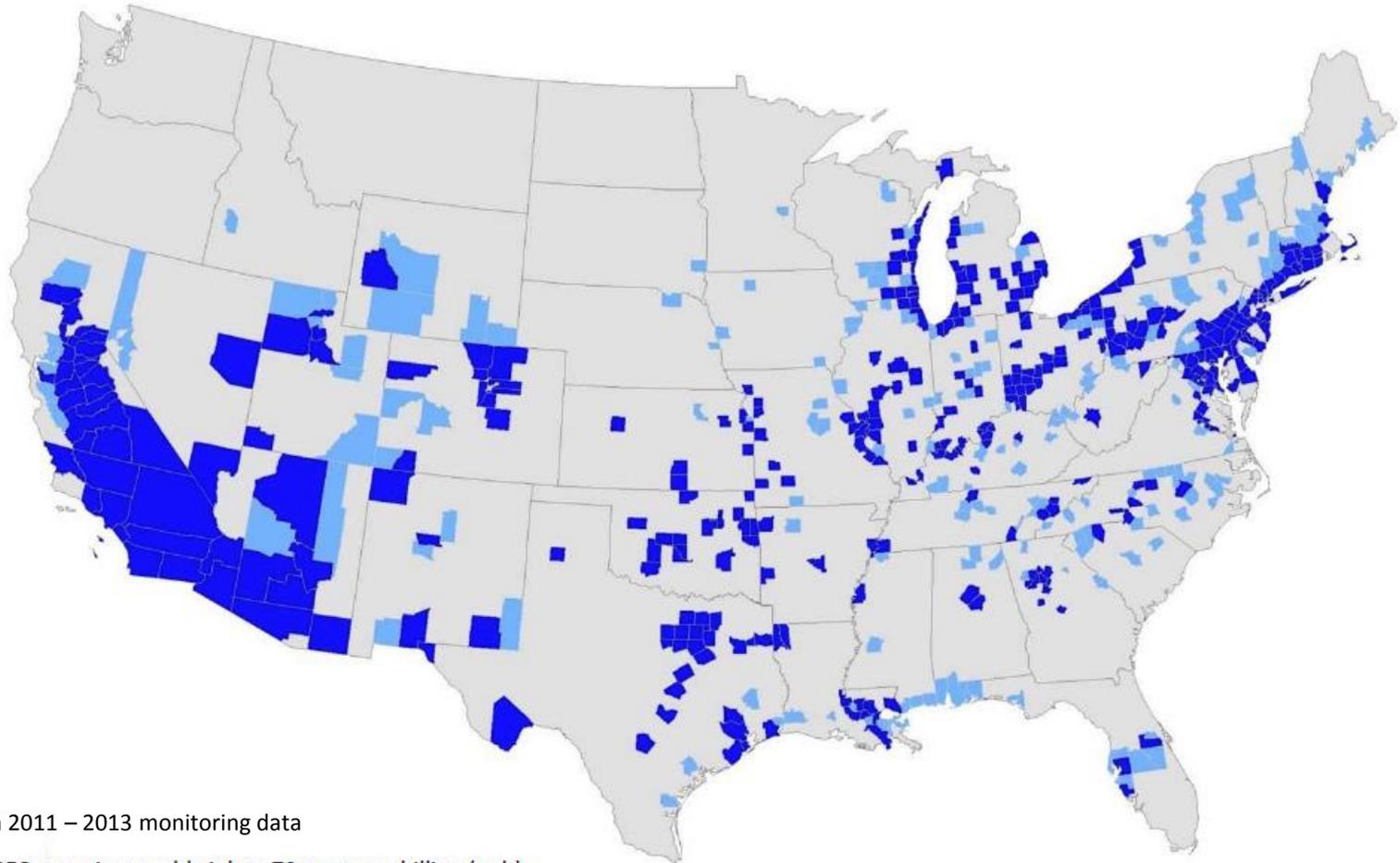
■ Areas not meeting 84 parts per billion

Based generally on 2001 – 2003 monitoring data

Today, 90 percent of those areas meet the 1997 Standards



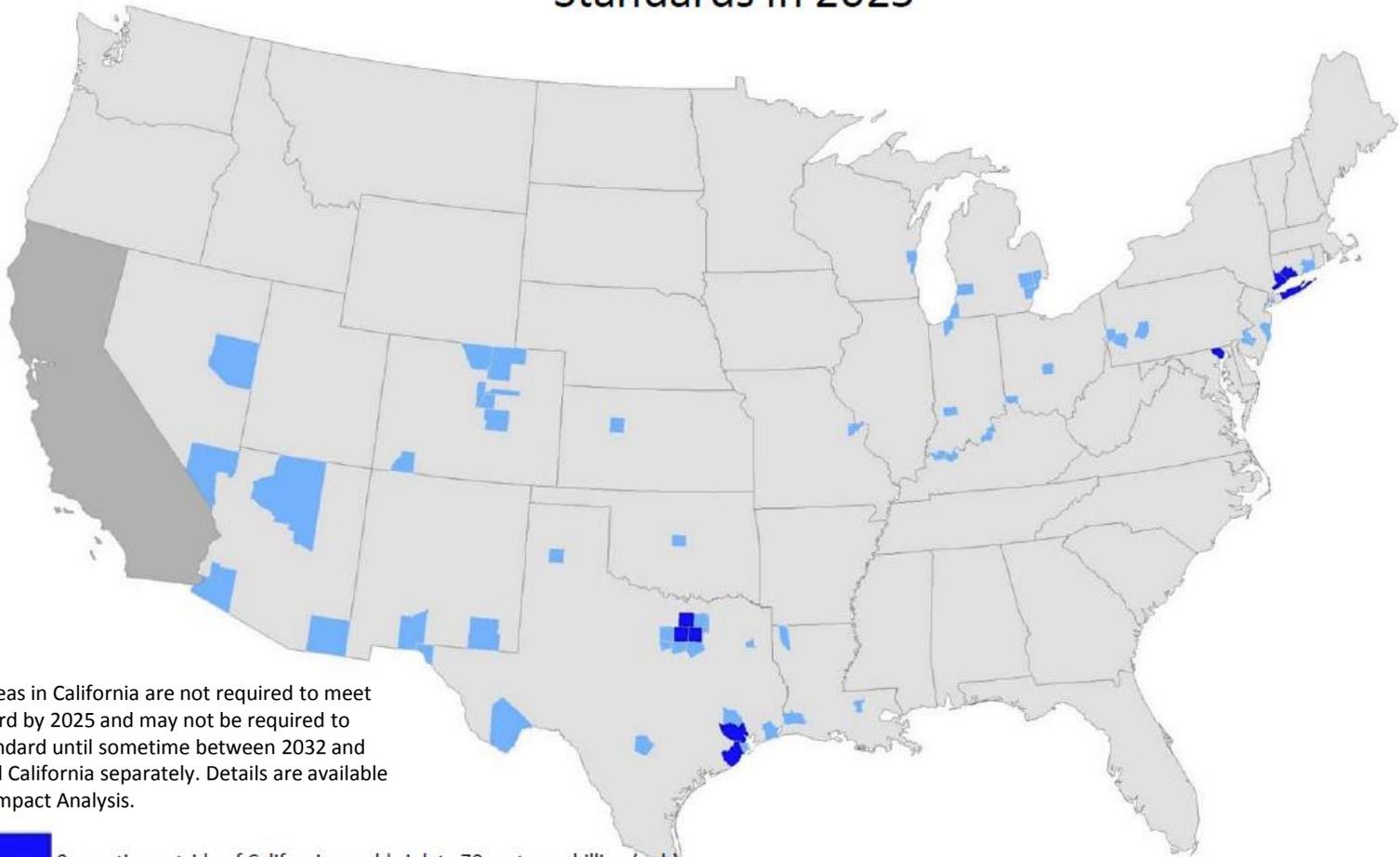
Counties Where Measured Ozone is Above Proposed Range of Standards (65 – 70 parts per billion)



Based on 2011 – 2013 monitoring data

- 358 counties would violate 70 parts per billion (ppb)
- 200 additional counties would violate 65 ppb for a total of 558

EPA Projects Most Counties Would Meet the Proposed Range of Standards in 2025



Because several areas in California are not required to meet the existing standard by 2025 and may not be required to meet a revised standard until sometime between 2032 and 2037, EPA analyzed California separately. Details are available in the Regulatory Impact Analysis.

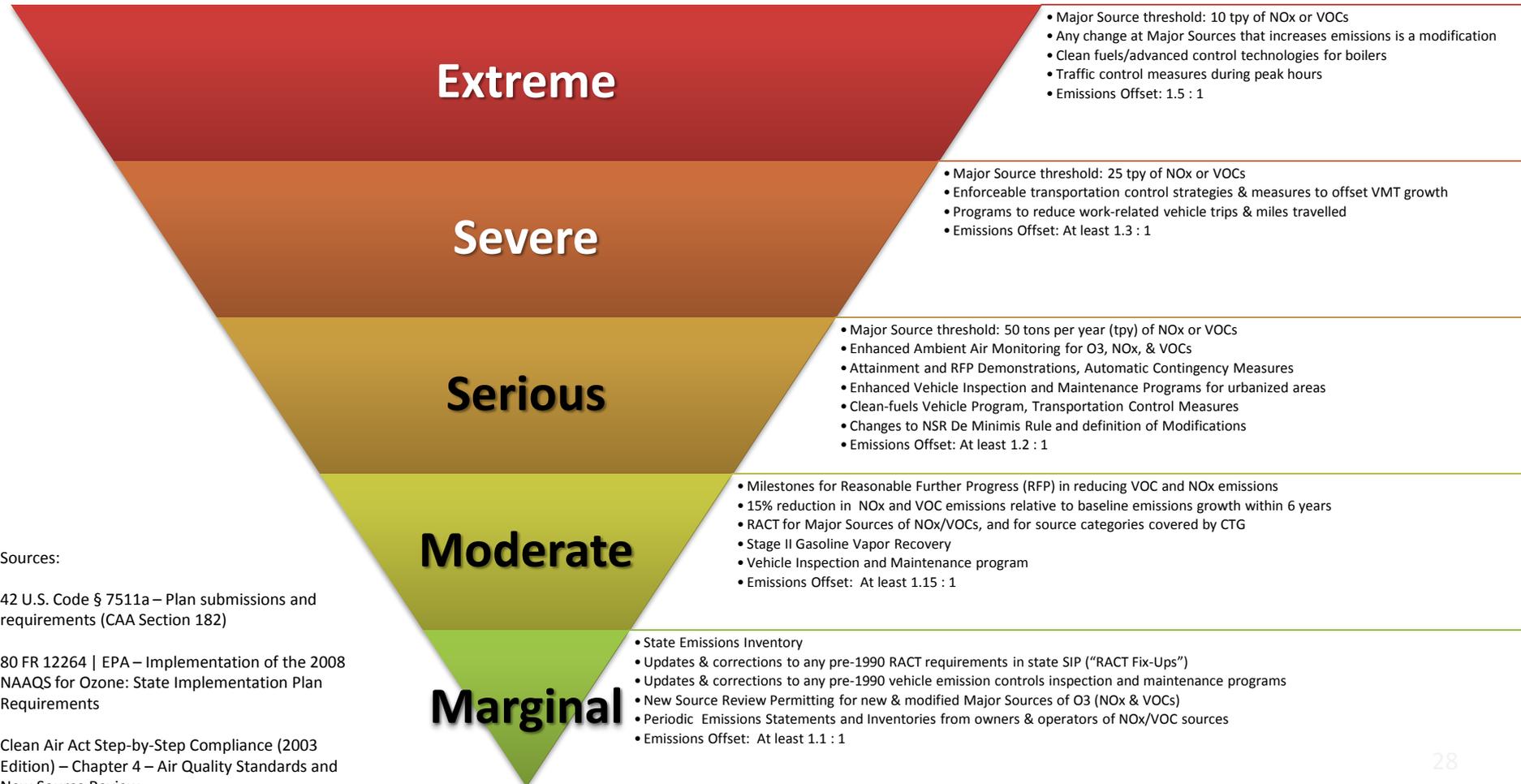
- 9 counties outside of California would violate 70 parts per billion (ppb)
- 59 additional counties outside of California would violate 65 ppb for a total of 68

Nonattainment Consequences

Nonattainment Consequences

- Nonattainment Area SIP requirements
 - Reasonably Available Control Measures (RACM)
 - Reasonable Further Progress (RFP)
 - Emission inventory, identification, & quantification
 - Permitting for new and modified Major Sources
 - Contingency measures
 - Other measures

Nonattainment Area SIP Requirements

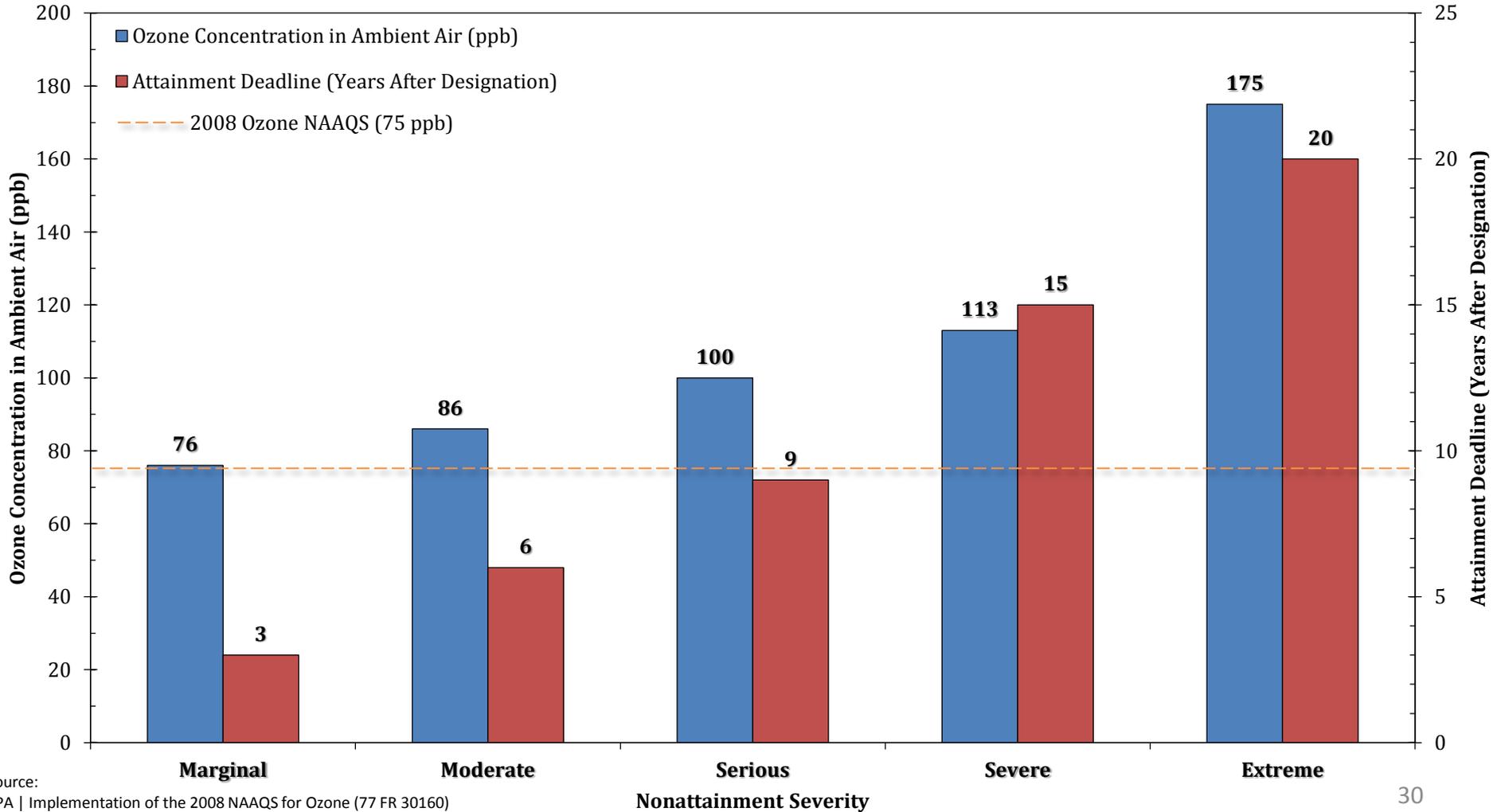


Sources:
 42 U.S. Code § 7511a – Plan submissions and requirements (CAA Section 182)

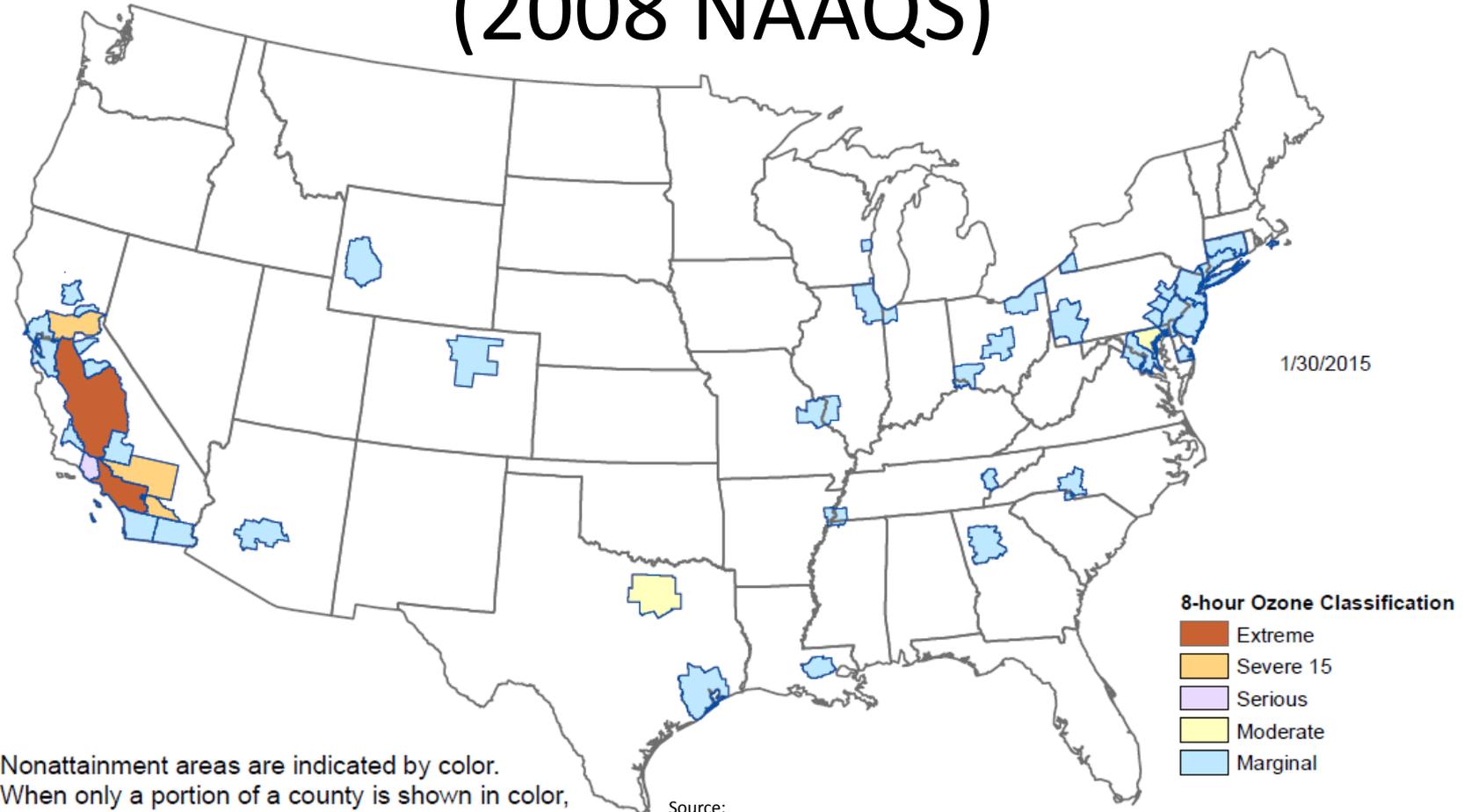
80 FR 12264 | EPA – Implementation of the 2008 NAAQS for Ozone: State Implementation Plan Requirements

Clean Air Act Step-by-Step Compliance (2003 Edition) – Chapter 4 – Air Quality Standards and New Source Review

2008 Ozone NAAQS Nonattainment Area Classifications and Attainment Deadlines



Ozone Nonattainment Areas (2008 NAAQS)



Nonattainment areas are indicated by color. When only a portion of a county is shown in color, it indicates that only that part of the county is within a nonattainment area boundary.

Source:
EPA | The Green Book – 8-hour Ozone Nonattainment Areas (2008 Standard)
<http://www.epa.gov/oar/oaqps/greenbk/hindex.html>

Nonattainment Consequences

- Potential Impacts on Nebraska
- Marginal Ozone Nonattainment
 - State Emissions Inventory
 - Updates & corrections to any pre-1990 RACT and vehicle inspection & maintenance programs
 - NSR Permitting for New & Modified Major Sources
 - Source emissions statements and inventories
 - Emission Offset requirement: at least 1.1 : 1

SO₂ NAAQS

SO2 NAAQS

- More granular and source-specific
- Last reviewed and revised in 2010
 - Primary Standard: 1-hour at 75 ppb
- 2011 state recommendations and EPA area designations followed by litigation
- Next designation deadline July 2016
- Updated guidance published Mar 2015

Sources:

EPA | Updated Guidance for Area Designations for the 2010 Primary Sulfur Dioxide NAAQS

<http://www.epa.gov/airquality/sulfurdioxide/pdfs/20150320SO2designations.pdf>

EPA | Fact Sheet – Revisions to the Primary NAAQS, Monitoring Network, and Data Reporting Requirements for Sulfur Dioxide

<http://www.epa.gov/airquality/sulfurdioxide/pdfs/20100602fs.pdf>

SO2 Nonattainment Areas (2010 NAAQS)



1/30/2015

Nonattainment areas are indicated by color. When only a portion of a county is shown in color, it indicates that only that part of the county is within a nonattainment area boundary.

SO2 NAAQS Nonattainment

- General Nonattainment SIP Requirements
 - SO2-specific RACM/RACT, RFP, attainment demonstrations, contingency measures, nonattainment NSR
- Areas designated nonattainment in Aug 2013
 - SIP submission deadline: Oct 4, 2015
 - Attainment deadline: Oct 4, 2018.

Sources:

EPA | Nonattainment Area and Ozone Transport Region (OTR) SIP Requirements

http://www.epa.gov/airquality/urbanair/sipstatus/nonattainment_req.html

EPA | Guidance for 1-hour SO2 Nonattainment Area SIP Submissions (April 23, 2014)

<http://www.epa.gov/airquality/sulfurdioxide/pdfs/20140423guidance.pdf>

An aerial photograph of a city, likely San Francisco, with a dense urban area in the foreground and a range of mountains in the background. The sky is a clear, light blue. The word "Questions?" is overlaid in the center of the image in a large, bold, black font.

Questions?